References
[1] Langlade A. Douleurs liées aux soins et actes diagnostiques chez l'adulte : propositions thérapeutiques. Douleurs 2007;8(4):229–37.
[2] Pellat JM, Hodaj H, Kaddour A, Long JA, Payen JF, Jacquot C, et al. Le MEOPA (Kalinox) (mélange équimolaire oxygène et protoxyde d'azote) dans le traitement de la douleur. Douleurs 2004;5(5):275–81.

http://dx.doi.org/10.1016/j.rehab.2013.07.246

P086-e

Somatosensory rehabilitation: Treatment of a complex regional pain syndrome type II

C. Massot [a,*], L. Heymans [b], V. Durlent [b], A. Thevenon [a], V. Tiffreau [a]
[a] *CHU de Lille, 2, avenue Oscar-Lambret, 59000 Lille, France*
[b] *CHR Wattrelos, France*
*Corresponding author.
E-mail address: carolinemassot29@gmail.com

Introduction.– The Complex regional pain syndrome (CRPS) presents serious therapeutic difficulties. Two types of this syndrome are known: type I without peripheral nerve lesion and type II with peripheral nerve lesion. Three stages are described: stage one with vasomotor troubles and allodynia, the stage two with hypoesthesia, then, the stage three with decreased range of motion. Here is, a CRPS case with neuropathic pain which was treated with somatosensory rehabilitation.
Observation.– A 64-year-old woman, was suffering from a CRPS type II in first stage in acromioplastia post-surgical of left shoulder in October 2011. The CRPS was diagnosed with Bruehl criteria and a scintigraphy.
The somatosensory rehabilitation was started in March 2012. The patient took analgesic pills which did not much relieved the pain. A map of the allodynia enabled to evaluate the intensity of neuropathic pain and identify the reached nerve. This sensitive cartographia was effected with a monofilament 15 g. A painful zone with a personal EVA $>$ 3/10 was delimitated. Then, in this territory, the intensity of allodynia was dertermined with other thinner monofilaments.
Here, the reached nerve was the superior branch of lateral skin nerve of the left arm.
The somatosensory rehabilitation consisted in:
– a distant vibrotactile counter stimulation 8 times a day during 1 minute with confortable stimuli in C8-D1;
– a distant viber counter stimulation realised with Vibralgic at 300 Hz, 0.9 v during less than 1 minute;
– none stimuli on the allodynia territory.
An assisted active range of motion exercise of the left shoulder was effected. The pain was gone, the allodynic territory had decreased to disappear one month later. The patient did not take treatment any longer. The range of motion of shoulder was normal.
Discussion.– The treatment of CRPS must start early with interdisciplinary management. Many treatments have been effected no so successfully and with sometimes severe side effects. New techniques, like mirror therapy or somatosensory rehabilitation could be explored.
Further reading
Spicher CJ, Mathis F, et al. Static mechanical allodynia is a paradoxical painful hypoesthesia: observations derived from neuropathic pain patients treated with somatosensoty rehabilitation. Somatosens Mot RES 2008;25(1):77–92.

http://dx.doi.org/10.1016/j.rehab.2013.07.247

P087-e

Botulinum toxin type A in piriformis muscle syndrome using electromyography guidance

D. Prat
Service d'explorations fonctionnelles du système nerveux, CHU Carémeau, place du Professeur-Robert-Debré, 30029 Nîmes cedex 9, France
E-mail address: dominique.prat@chu-nimes.fr

Keywords: Toxine botulinique A; Piriformis muscle syndrome; EMG
The action of the toxin botulinum of type A (TBA) on the abnormal hyperactivity of the piriformis muscle in the rest is a hypothesis allowing to think that the decrease of this hyperactivity, witness of the muscle spasm, comes along with an improvement of the painful of the patients.
Patients and method.– It is the retrospective study which allowed to include patients with piriformis syndrome [2–4], distributed in two groups (neurological G1, not neurological G2).
Method:
– the clinical evaluation [3,4] and the EMG detection: activities of muscular not looseness during the muscular relaxation in the piriforme [3], allowed the inclusion, the absence of hyperactivity excluded the patients;
– the injection of TBA during EMG was realized with location of the muscular activities. A control EMG in 3 months was planned.
Results.– Twenty-five inclusive patients mailed: 17 injections of TBA (7 group 1, 10 group 2), 8 excluded patients.
The modification of the muscle spasm noticed in the EMG by the decrease of the muscular hyperactivity is not correlated in a significant modification of the pain (3/6 months later).
Discussion.– This preliminary study allows to define the electrophysiologics criteria necessary to propose an injection of TBA in the piriformis muscle in the contact of the hyperactive driving plate the clinicals and the electrophysiologics results, to compare them with the previous works [1,2,5].
One prospective study is necessary by including these electrophysiologic criteria during the injection.
References
[1] Childers MK, Wilson DJ, Gnatz SM, Conway RR, Sherman AK. Botulinum toxin type A use piriformis muscle syndrome: pilot study. Am J Phys Med Rehab 2002;81(10):751–9.
[2] Kirschner JS, Foye PM, Cole JL. Piriformis syndrome, diagnosis and treatment. Muscle Nerve 2009;40:10–8.
[3] Pace JB, Nagle D. Piriformis syndrome. West J Med 1976;124:435–9.
[4] Prat-Pradal D. Syndrome du muscle piriforme : confrontations anatomo-cliniques et anatomo-chirurgicales à propos de 15 cas. Rev Med Orthop 1995;41:24–9.
[5] Yoon SJ, Ho J, Kang HY, Lee SH, Kim KI, Shin WG, et al. Low-dose botuliniumn toxin type A for the treatment of refactory piriformis syndrome. Pharmacotherapy 2007;27(5):657–65.

http://dx.doi.org/10.1016/j.rehab.2013.07.248

P088-e

Nitrous oxide interest in pain management to gain joint work within the framework of complex regional pain syndrome type I of a case

A. Hafid
CH Saint-Amand-Montrond, 1, rue de la Croix-Duchet, 18200 Saint-Amand-Montrond, France
E-mail address: azzeddine_hafid@yahoo.fr

Keywords: Equimolar mixture oxygen-nitrous oxide; Regional pain syndrome complex type I; Joint stiffness
Introduction.– Mobilization of a stiff knee in NITROUS within a complex regional pain syndrome type I of a case.
Objectives.– Nitrous oxide interest in pain management for a joint job gain.
Clinical case.– Mrs H.F., 45 years, CRPS type I in the right knee of posttraumatic origin.
Clinical examination.– Diagnostic criteria and severity score CRPS Budapest.
At least one symptom in each group is present.
At least one sign in the four groups was found.
Total number of symptoms and signs present: 12/18.
Walk with 2 CA with stiffness in his right knee, independent with ADL in long sick.
Support.– Day hospital with physical therapy at 3 times/week.
Intolerance TT requires dose adjustment (maximum tolerated 10 mg).
Mobilization painful; flexion 70°, extension 0° after 16 weeks.
Making use of nitrous oxide for its analgesic and relaxant [2] and its safe use to maintain the swallowing reflex [1].
After explanation of the gesture, nitrous oxide administration (maxi/5 min, flow 12 L) before mobilization followed by a gentle passive mobilization (flow 12 L, maxi/20 min) with bending posture respecting the no pain.

Twelve sessions were conducted.
Results.– Amnesic effect on pain may occur during mobilization.
Flexion: 95° active.
Pain: 0/10 at rest and walking.
Improving the quality of walking with a smooth and not increase walking speed without technical assistance.
Resumption of his previous 26 months work after the diagnosis of CRPS-I.
Scintigraphy: net regression process CRPS-I detected in his right knee in 2010.
Regularization of all households hyperactive.
Discussion and conclusion.– This would be for the benefit of nitrous oxide in the mobilization of a stiff joint including CRPS-I through a permitting algo-functional improvement and joints that enabled our patient to return to his previous work.
References
[1] Collado V, Nicolas E, Faullks D, Hennequin M. A revue of the safety of 50 % nitrous oxyde/oxygen on conscious sedation. Expert Opin Drug Saf 2007;6(5):559–71.
[2] http://www.cnrd.fr/IMG/pdf/RCP_KALI.pdf.

http://dx.doi.org/10.1016/j.rehab.2013.07.249

P089-e

Intrathecal ziconoide and baclofene, an efficient association

J.-C. Kleiber [a,*], A. Rapin [b], J.-M. Coulon [b], E. Theret [a], F. Boyer [b], P. Peruzzi [a]
[a] *Service de neurochirurgie, CHU de Reims, 45, rue Cognacq-Jay, 51100 Reims, France*
[b] *Service de MPR, CHU de Reims, 45, rue Cognacq-Jay, 51100 Reims, France*
*Corresponding author.
E-mail address: jean-charles.kleiber@neurochirurgie.fr

Keywords: Chronic pain; Spasticity; Ziconotide; Baclofene; Intrathecal treatment
Introduction.– Intrathecal ziconotide has shown its efficiency in chronic resistant pain, we studied the association with baclofene in spastic pain management.
Patients.– Seven patients, 4 female, 3 male, average age 54.3 years old [39; 75] have been treated with continuous intrathecal infusion of baclofene, ziconotide and morphine. Four had a failed back surgery syndrome, 1 peripherical nerve lesion, 1 spine injury, 1 cerebral palsy. Ziconotide has been introduced after the failure of an intrarachidian morphine + baclofene treatment.
Results.– The average decrease of pain intensity after we began the ziconotide treatment was equal to 31 mm on visual analog pain scale, from 68 to 37 mm efter ziconotide introduction. Ziconotide adding had no effect on spasticity which was already efficiently managed by intrathecal baclofene. The average follow-up was 13.3 months [2; 26 months]. Average ziconotide posologies were 3.1 μg per day [1.25; 5.7 μg per day] and 342 μg per day [43; 1800 μg per day] for baclofene. Ziconotide had to be stopped for 3/7 (43%) because of side effects, with a full recovery after treatment interruption. One patient kept auditory hallucination but did not want any posology modification since he was satisfied with the antalgic level. Most of the side effects occurred during the first semester of our using of ziconotide due to a too fast dose increase. The commonest side effects were: nausea, dizziness, ataxia, visual and/or auditory hallucination. No treatment failure has been noticed for two years. Initial treatment administration has to be as low as possible (1 μg per day in our population) in order to obtain antalgic effect without major side effects. A slight increase of doses (+0.3 μg per week) allows pain management without side effects.
Conclusion.– Ziconotide in association with intrathecal baclofene is a good way to deal with chronic pain with spasticity.

http://dx.doi.org/10.1016/j.rehab.2013.07.250

P090-e

Algodystrophy and pregnancy: About a new case

I. Bel Haj Youssef [*], Z. Alaya, K. Bakkouche, H. Zeglaoui, S. Belghali, H. Ben Fredj, A. Jamel, E. Bouajina
CHU Farhat Hached Sousse, 115, avenue Mohamed Salah Sayadi Souani, 5000 Monastir, Tunisia
*Corresponding author.
E-mail address: ihebbelhajyoussef@yahoo.fr

Keywords: Algodystrophy; Pregnancy
The algodystrophy is a regional pain syndrome, characterized by complex neurovascular abnormalities. Pregnancy appears through mechanical factors promote dystrophy of the lower limbs. We report a case of bilateral hip dystrophy diagnosed during postpartum.
This is a 31-year-old woman, primipara, who presented in the third quarter of pregnancy (35 weeks gestation) mechanical bilateral groin pain with functional impairment. She has consulted in postpartum (4 days after birth). The review noted a limp, functional impairment with a VAS pain 70%. Standard radiographs postpartum showed speckled locoregional demineralization hips. MRI confirmed the diagnosis of CRPS hips. The patient took analgesic treatment with a discharge and rest for 3 months. She has not received bisphosphonates because she breastfeeding. Disease duration was 24 weeks. The evolution was marked by the persistence of residual pain (VAS 20%) without sequelae.
The analysis of our results compared to literature, allows to identify the main characteristics of this variety of reflex sympathetic dystrophy: gradual onset in the second or third trimester, location in the hip alone or associated with other locations [1–3]. MRI is currently the modality of choice for the early and differential diagnosis [1,3]. The course is generally favorable [3].
Algodystrophy during pregnancy is rare and is often misunderstood. MRI have an important place in the diagnosis of this disease. The safety of bisphosphonates during pregnancy and lactation remains to be demonstrated.
References
[1] Sellami M, et al. Ann Readapt Med Phys 2006;49:178–86.
[2] Sergent F, et al. Gynecol Obstet Fertil 2003;31:543–5.
[3] Zrigui J, Etaouil N, Mkinsi O. Joint Bone Spine 2002;69:342–4.

http://dx.doi.org/10.1016/j.rehab.2013.07.251

P091-e

Clinical, ultrasonographic and CT markers for botulinum toxin injections into the piriformis muscle

F. Michel [*], S. Aubry, P. Decavel, L. Tatu, E. Toussirot, E. Aleton, B. Parratte
CHU Jean-Minjoz, boulevard Fleming, 25000 Besançon, France
*Corresponding author.
E-mail address: fmichel@chu-besancon.fr

Keywords: Piriformis muscle; Ultrasound; Botulinum toxin
Objective.– The study of the literature concerning the treatment of piriformis muscle syndrome (PMS) to validate the role of botulinum toxin injections performed after failure of medical management and rehabilitation. The few reported series confirm the results significantly superior to placebo injections and even repeated anesthetics and/or corticosteroids. The piriformis muscle belongs to the deep part of the gluteal region where the need for radiological identification. Our team couples the ultrasound with electromyography detection, allowing the latter through an active lateral rotation maneuver (in a subject supine on the healthy side) to optimize the injection site. Ultrasound, with constant technical progress and the development of new sensors, allows very interesting morphological evaluation of the muscle and its relationship with the main sciatic nerve. The objective of this study was to validate the clinical and ultrasonographic markers compared to CT and anatomical data.
Patients and methods.– Five patients supported for SMP received botulinum toxin injections under ultrasound and CT with a minimum of 3 months between each injection, the second injection performed because of insufficient improvement of symptoms.
Results.– The clinical markers of projection of the piriformis muscle is defined by a triangle whose base joins the posterior superior iliac spine and the upper part of the inter-gluteal fold, and whose summit is next to the upper pole of the greater trochanter. Ultrasound (abdominal convex probe tone) body muscle is visualized on the lateral edge of the sacrum with a depth of 4.8 cm for the